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Claims

1. A process for preparing a stretchable paper backing, said process comprising the following steps:
 - (a) introducing plant fiber material into a pulper;
 - (b) mixing the fiber material with water;
 - 10 (c) beating the fiber material to produce a fiber dispersion;
 - (d) feeding the fiber dispersion in a controlled manner to form a paper web;
 - (e) drying the paper web a first time, so that its solids content is between 15% and 35% by weight;
 - (f) forming the paper web in a first press station;
 - 15 (g) drying the paper web a second time, so that its solids content is between 50% and 60% by weight, and simultaneously stretching the paper web in a machine direction;
 - (h) compacting the paper web in a second press station;
 - (i) drying the paper web a third time, so that its water content is between 15% and 20 4% by weight; and
 - (j) transferring the paper web to a calender stack.
2. The process according to Claim 1, wherein in step (c) the fiber material is beaten onto a former wire and/or a water content of the fiber material is continuously reduced.
3. The process according to Claim 1, wherein in step (i) the paper web is dried so that its water 25 content is between 10% and 8% by weight.
4. The process according to Claim 1, wherein the fiber suspension during beating is worked on with squeezing and fibrillation but with less cutting.
5. The process according to Claim 4, wherein the fiber suspension during beating is worked on with squeezing and fibrillation but with less cutting through the use of a cascade of two or 30 more beater units fitted with lava disks.
6. The process according to Claim 1, wherein a freeness of the fiber dispersion (determined by the Schopper-Riegler method) is from 25 to 65 Deg SR.

- 5 7. The process according to Claim 6, wherein a freeness of the fiber dispersion (determined by the Schopper-Riegler method) is from 30 to 60 Deg SR.
8. The process according to Claim 1, wherein the fiber dispersion is hydrated and curled in a hollander.
- 10 9. The process according to Claim 1, wherein the forming of the paper web takes places on the first press station, which comprises a roll pair or of a sequence of two or more roll pairs selected from the following group:
- 15 a) a top roll having a structured profile and a smooth bottom roll having a smooth standard felt, with the paper web being located between the top roll and the felt;
- b) two smooth rolls between which a structured felt is located such that there can be formed a paper web which runs between felt and top roll, the paper web being located between the top roll and the felt;
- 15 c) a top roll having a structured profile, and a smooth bottom roll (without felt); or
- d) two smooth rolls and one smooth felt and one structured felt, with the paper web being located between the top roll and the top felt.
- 20 10. The process according to Claim 1, wherein the paper web is compacted by a second press station, which comprises at least one roll pair with rolls of different types, at least in the longitudinal direction.
- 25 11. The process according to Claim 10, wherein the paper web is compacted by a second press station, which comprises at least one roll pair with rolls of different types, both in the longitudinal direction and in the transverse direction at the same time, the roll pair comprising a first roll and a second roll, the first roll being harder than the second roll, the first roll having a predetermined surface quality and the second roll being smooth and running slower at a periphery than the first roll.
- 30 12. The process according to Claim 11, wherein the first roll is a steel roll and the second roll is a rubber roll.
13. The process according to Claim 12, wherein the steel roll on its surface has a peripherally grooved structure.

- 5 14. The process according to Claim 1, comprising during the second drying stretching the paper web in a machine direction by means of a precisely controlled preacceleration of consecutive web-guiding rolls.
15. The process according to Claim 14, wherein the second drying is thermal.
- 10 16. The process according to Claim 14, wherein said stretching is set at a level such that an ultimate tensile strength of the paper web is substantially attained during this step.
17. The process according to Claim 1, wherein the backing comprises a paper which in a machine direction has a breaking elongation of at least 15% and in a transverse direction a breaking elongation of at least 5%.
- 15 18. The process according to Claim 17, wherein the backing comprises a paper which in a machine direction has a breaking elongation of at least 20% and in a transverse direction a breaking elongation of at least 10%.
19. The process according to Claim 18, wherein the backing comprises a paper which in a transverse direction has a breaking elongation of at least 15%.
- 20 20. The process according to Claim 19, wherein a basis weight of the backing is from 35 to 250 g/m².
21. The process according to Claim 20, wherein the basis weight of the backing is from 50 to 200 g/m².
22. The process according to Claim 21, wherein the basis weight of the backing is from 70 to 150 g/m².
- 25 23. The process according to Claim 1, wherein the fiber material comprises non-wood-derived plant fibers.
24. The process according to Claim 23, wherein the non-wood-derived plant fibers are selected from the group consisting of cotton linters, hemp, flax, esparto and kenaf.

- 5 25. An adhesive masking tape comprising:
- (a) a stretchable paper backing produced according to Claim 1; and
 - (b) an adhesive coated on one or both sides of said backing.
26. The adhesive masking tape according to Claim 25, wherein the adhesive is a solvent-based or solvent-free self-adhesive composition.
- 10 27. The adhesive masking tape according to Claim 26, wherein the adhesive is based on natural rubber, polyacrylates, styrene block copolymers, ethylene-vinyl acetate, polyurethane, poly-alpha-olefins, polyisobutylene, or styrene-butadiene rubber.
28. A method of masking a surface comprising applying an adhesive masking tape according to Claim 25 to said surface to mask said surface.